

Claims

1. A road view analyzing apparatus having a camera mounted on a vehicle to photograph a view in front of the vehicle, for analyzing a road view indicated by an image of the view in front of the vehicle photographed by the camera, the road view analyzing apparatus comprising:

image dividing means for dividing the image of the view in front of the vehicle photographed by the camera into a plurality of areas with diagonal lines; and

analyzing means for separately analyzing content of an image in each of the plurality of areas.

2. The road view analyzing apparatus according to claim 1, wherein said image dividing means divides the image of the front view of the vehicle into four areas with two diagonal lines, and

the analyzing means separately analyzes content of an image in each of the four areas.

3. The road view analyzing apparatus according to claim 2, wherein said analyzing means includes:

road view analyzing means for applying road analysis processing to an image in a lower area of the four areas;

scene analyzing means for applying scene analysis processing

to an image in each of left and right areas of the four areas;
and

background analyzing means for applying background analysis processing to an image in an upper area of the four areas.

4. The road view analyzing apparatus according to claim 3, wherein said road analyzing means includes:

means for recognizing a white line on a road in accordance with the image in the lower area to calculate an approximate straight line of the white line;

means for measuring a linear distance of the approximate straight line;

means for measuring a lane width in accordance with the approximate straight line; and

means for recognizing a road surface state in accordance with the image in the lower area.

5. The road view analyzing apparatus according to claim 3, wherein said scene analyzing means includes:

means for detecting a green ratio and a blue ratio of the image in each of the left and the right areas to estimate a ratio of a forest and a sea;

means for detecting a color distribution of the image in each of the left and the right areas; and

means for performing fractal dimension analysis for the image in each of the left and the right areas.

6. The road view analyzing apparatus according to claim 3, wherein said background analyzing means includes:

means for detecting a blue ratio of the image in the upper area to estimate a ratio of a blue sky;

means for detecting a color distribution of the image in the upper area to estimate a background main object; and

means for measuring a distance to the background main object.

7. The road view analyzing apparatus according to claim 3, wherein said analyzing means includes:

means for setting indexes of a plurality of road characteristics, respectively, in accordance with a result of the road analysis processing;

means for setting indexes of a plurality of scene characteristics, respectively, for each of the left and the right areas in accordance with a result of the scene analysis processing;

means for setting indexes of a plurality of background characteristics, respectively, in accordance with a result of the background analysis processing;

means for calculating an average value of the indexes of the plurality of road characteristics as road comfortableness;

means for calculating an average value of the indexes of the plurality of scene characteristics as scene comfortableness on the left and the right for each of the left and the right areas;

means for calculating an average value of the indexes of the plurality of background characteristics as background comfortableness; and

means for calculating an average value of the road comfortableness, the scene comfortableness on the left and the right, and the background comfortableness.

8. The road view analyzing apparatus according to claim 7, wherein said analyzing means includes document data creating means for creating document data including a road characteristic of a maximum value of the indexes of the plurality of road characteristics, a scene characteristic of a maximum value of the indexes of the plurality of scene characteristics, and a background characteristic of a maximum value of the indexes of the plurality of background characteristics.

9. The road scene analyzing apparatus according to claim 7, wherein the plurality of road characteristics are linearity of a road, cleanness of a road surface, and a width of a road,

the plurality of scene characteristics are a ratio of a

forest and a sea, sparseness of advertising boards, and complexity, and

the plurality of background characteristics are a blue sky ratio, sparseness of signboards, and openness.

10. The road scene analyzing apparatus according to claim 1, further comprising:

means for judging whether an obstacle is present in the image of the view in front of the vehicle photographed by the camera; and

means for activating said image dividing means and said analyzing means when the obstacle is not present in the image of the view in front of the vehicle.

11. The road view analyzing apparatus according to claim 10, wherein the obstacle is a vehicle.

12. A road view analyzing method of analyzing a road view indicated by an image of a view in front of a vehicle obtained by photographing the view in front of the vehicle, the road view analyzing method comprising:

an image dividing step of dividing the image of the view in front of the vehicle into a plurality of areas with diagonal lines; and

an analyzing step of separately analyzing content of the

image in each of the plurality of areas.